INDIANA Epidemiology NEWSLETTER

Indiana State Department of Health

Epidemiology Resource Center
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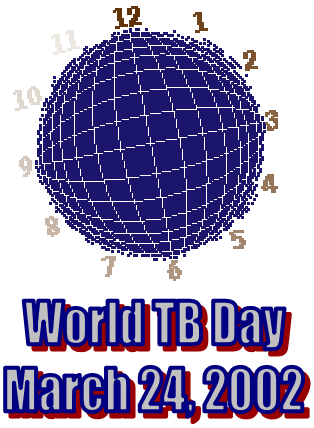
The Role of Directly Observed Therapy in the Elimination of Tuberculosis



Paul Britton, R.N., M.S.
ISDH TB Control Program

Tuberculosis continues to be one of the deadliest diseases in the world, with 8 million new cases and 3 million deaths reported worldwide each year. It continues to be the leading cause of death among AIDS patients worldwide. Twenty-three high-burden countries account for 80 percent of the world's TB cases. Immigrants from these countries accounted for 46 percent of all new cases nationwide in 2000, and 37 percent of all new cases in Indiana in 2001.

Once the scourge of mankind, TB was no longer considered a problem in the U.S. as new cases declined rapidly from 1958 to 1985. The decline was due to the development of effective anti-tuberculosis drugs, a national public health emphasis on TB control, and improvements in living conditions. As the decline continued, it was thought that the disease had been conquered. What went away was not TB, but the public health programs that were set up to combat the disease. Beginning in 1985, there was an increase in new cases due to the dismantling of TB control programs, the AIDS epidemic, and dramatic increases in new cases in persons born in countries where TB is common. This increase in new cases peaked in 1992, and has declined steadily since then because of renewed public health efforts to control and eliminate TB. The increased use of directly observed therapy to treat TB patients has played a crucial role in the continued decline of the disease.

Directly observed therapy (DOT) is an important component of the overall TB case management system. DOT means that a health care worker or other designated person watches the patient swallow each dose of TB medication. DOT ensures that the medication is getting inside the patient and provides an accurate account of how many doses were given.

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Directly observed therapy has its origins in the TB sanitoria when chemotherapy was becoming widely used in the early 1950's. Drug treatment was integrated into the overall treatment program for quarantined patients. Once it was discovered that chemotherapy resulted in a rapid reduction in sputum bacillary counts, the sanitorium program was abandoned when it was no longer necessary to house TB patients in these facilities. It also became equally apparent that TB patients were often unreliable in taking their medications when left on their own.

Beginning in the 1970's, several big-city TB control programs began to implement DOT, most notably in Denver, and later in Baltimore, Fort Worth, and New York City. Rates of new cases fell in areas using DOT. Other added benefits of DOT included ensuring completion of therapy and dramatic decreases in the rates of acquired drug resistance, relapses, and treatment failures.

The increase in the use of DOT in Indiana has been a major contributing factor in the state's declining TB case rate. Figure 1 shows the increased use of DOT and a decrease in patients taking medications on their own over a five-year period for which complete data are available.

Figure 1

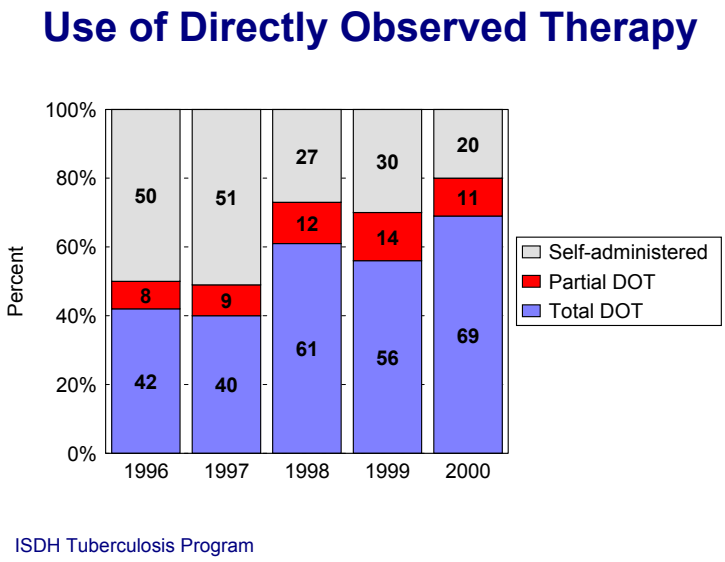
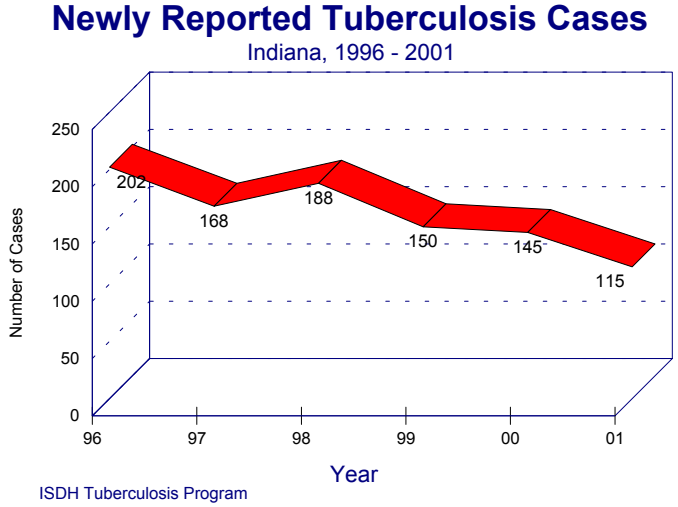


Figure 2 shows how the number of new TB cases has declined during the same period, including the impact DOT has had on the number of new cases reported in 2001.

Figure 2



Directly observed therapy is offered to patients as both a standard of care and a convenience. Seven federally-funded outreach programs serve multi-county areas of the state that have the most TB cases. Many smaller health departments that serve low-prevalence areas provide DOT as part of their normal duties. Although it is a restrictive measure by its very nature, the majority of patients, local health departments, and physicians have been receptive to DOT. It is clearly the best practice for ensuring that patients take their medication until they are cured.

References:

1. Centers for Disease Control and Prevention. *Core Curriculum on Tuberculosis, 4th Edition, 2000.*

2. Iseman, Michael D., *A Clinician's Guide to Tuberculosis*. Philadelphia: Lippincott Williams & Wilkins. 2000.

3. Institute of Medicine. *Ending Neglect: The Elimination of Tuberculosis in the United States.* 2000.

4. Friedman, Lloyd N. *Tuberculosis: Current Concepts and Treatment*. Boca Raton: CRC Press. 1994.

Confidentiality in Public Health

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ISDH Epidemiology Resource Center

Public health workers have a moral and legal obligation not to release data in a manner that would allow public identification of a case or that would in any way be harmful to a case. On the other hand, the public has a right to know, and it often serves legitimate public health interests for the public to know certain information about diseases in the community. Releasing information that both protects the privacy of the case and provides the public with useful information can be tricky. What follows is meant to be an overview of privacy issues in public health and not a legal opinion. Local health departments should contact their attorney for advice on developing a data release policy for their agency.

Except as provided by law (see below), a public health department cannot divulge the identity of a person with an infectious disease. That is the easy part. The hard part is determining what constitutes identifying information. For example, the Health Insurance Portability and Accountability Act (HIPAA) lists 18 types of potentially identifying information that should be removed before release to the public or the media. These so-called "Safe Harbor" methods of deidentification include the following:

1. names
2. all geographic subdivisions smaller than a state (e.g., street address, county, precinct, and ZIP code)
3. dates (e.g. birth, admission, discharge, death, ages over 89, etc.)
4. telephone numbers
5. FAX numbers
6. E-mail addresses
7. social security numbers
8. medical record numbers
9. health plan beneficiary numbers
10. account numbers
11. certificate/license numbers
12. vehicle identification numbers and serial numbers, including license plate numbers
13. device identifiers and serial numbers
14. web site URL's
15. Internet Protocol (IP) address numbers
16. biometric identifiers, including finger or voice prints
17. full face photographs and comparable images
18. any other unique identifying number, characteristic, or code.

Although the list appears overly restrictive at first glance, with the exception of the second point, a determined person could fairly easily identify a case using any one of the other 17 items. Also, the identification risk posed by released information does not rest solely on the actual information released but also on information available from other sources. For example, many jurisdictions make voter registration data (including names, addresses, and birth dates) available to the public. It is not difficult to take seemingly non-specific information such as an age of 92 years and determine the identity of someone using voter registration or drivers' license data. In a study in Cambridge, MA (population 54,804), investigators found that 97% of voters could be uniquely identified using only a birth date, 9 digit ZIP code, and the voter registration data base.

The restriction on geographic subdivisions is particularly onerous, and if followed, would prohibit the release of county level information. (The restriction against release of county level information does not extend to summary data. For example, reporting that "Paradise County" had 12 cases of salmonellosis in 2001 would usually not be identifying information. Please see below for more information.)

Because many public health activities are exempt from certain HIPAA provisions, the Safe Harbor methods of deidentification are useful indicators of information that might lead to the identification of a case rather than criteria that local health departments must follow. Again, it is important to obtain the advice of an attorney when determining when HIPAA applies and when developing data release policies.

It is interesting to note what is not included in the Safe Harbor methods. For example, race, ethnicity, gender, and marital status are not mentioned. But when combined with other sources of information, these could also be used to identify a case. Other potentially identifying information includes unusual occupations and hobbies, place of hospitalization and burial, length of residence, and extreme ages and salaries. Mentioning that a case of psittacosis occurred in a pigeon fancier could be identifying information in a county with only a few pigeon fanciers.

Generally, there is one exception that permits release of identifying information. If the case gives written consent, then the information can be released. Sometimes health officials must release certain information to protect the public's health and safety. Even in this instance, confidentiality requirements must still be met. For example, publicizing that a case of West Nile virus infection was diagnosed in a county would alert the public to the risk posed by mosquito bites and would possibly prevent other cases. In this case, however, the gender, race, age, and address of the case would not be relevant to the alert and should not be released. The general location (e.g. southeastern part of the county) might be mentioned if the risk were particularly high there and not elsewhere.

In general, the best policy is to release only enough information to accomplish the public health objective and no more. A reporter or member of the public might already know the identity of the case and merely want confirmation from the local health department. Prior knowledge by the requester does not absolve public health workers from their obligation to maintain confidentiality, and such identifying information should not be confirmed.

The information presented above refers primarily to information about individual cases. Another confidentiality issue arises when summary data are released for a relatively small geographic area, such as a county. When there is a large number of cases (e.g. 5 or more) or the county population is large (e.g. >100,000), the likelihood of identification is small. For small counties with few cases, there are several techniques that should be used to prevent identification of the cases. By combining several years of data, both the number of cases and the effective county population size are increased. For example, in a county of 20,000 persons, combining 5 years of data would increase the effective population size to 100,000 and in many instances increase the number of cases to 5 or more.

Another option for summary data is to leave out (suppress) table values less than 5. This is especially useful when compiling a table of infectious disease incidence and some diseases are represented by only a few cases. Because it is possible to figure out the suppressed value from the column and row totals when only one value is suppressed, either the column and row totals should not be shown or other values should also be suppressed so that no column or row has only one suppressed value.

A third option when presenting tables of summary data would be to collapse columns or rows. For example, if breaking down cases by race and gender produces table values less than five, combining all races or both genders sometimes results in fewer or no values less than 5.

In addition to protecting confidentiality when information is released intentionally, local health departments must also take measures to prevent inadvertent disclosure of protected information. All employees should understand the contents of and sign a confidentiality agreement. A data release policy is a useful tool for ensuring that staff know what information can routinely be released. Established office security procedures will help prevent an outside party from discovering and disclosing protected information. For example, are sensitive materials left out on desks so visitors can see them? Are materials locked away at night so that cleaning crews and others do not have access to them?

Confidentiality issues in public health are complex. Legal advice is necessary to ensure that policies at the local level achieve the sometimes conflicting goals of informing the public of health hazards in the community and of protecting the identity of cases.

Principles of Epidemiology

An Introduction to Applied Epidemiology and Biostatistics

A Centers for Disease Control and Prevention (CDC) Self-Study Course

Presented by the Indiana State Department of Health
Epidemiology Resource Center (ERC)

This course is targeted to local health officers, public health nurses, environmental health specialists, and anyone who wants to gain more skill in basic epidemiology. By the conclusion of the course, participants will understand fundamental epidemiological principles, introductory statistical methods, simple ways to organize epidemiologic data, basic surveillance techniques, and methods of outbreak investigation. While this is a CDC course, the instruction will be tailored to Indiana, with examples from Indiana and emphasis on Indiana specific forms and procedures where appropriate. Also highlighted will be case investigation, bioterrorism issues, and various disease agents.

ISDH ERC staff will teach the course, organized into six different lessons, over **three Friday afternoons** via satellite downlink:

Date	Time	Lesson	Instructor
4/12/02	**2:00-5:00**	1: Introduction to Epidemiology	Jim Howell
		2: Frequency Measures Used in Epidemiology	Bob Teclaw
4/26/02	**12:00-3:00**	3: Measures of Central Location/Dispersion	Hans Messersmith
		4: Organizing Epidemiological Data	Hans Messersmith
5/10/02	**1:00-4:00**	5: Public Health Surveillance	Jim Howell
		6: Investigating an Outbreak	Pam Pontones

Each presentation will last approximately two hours, allowing time for questions and a break. All presentation materials will be available on the ISDH web site at ** two weeks prior to the session. Each registered participant will also receive the CDC course textbook prior to the start of the course. Participants should read the relevant textbook sections prior to the presentations. After the sessions, an afternoon of on-site technical assistance will be offered in the north, central and southern sections of the state for those interested. During that time, participants can receive on-site help with questions and exercises and obtain up to 4.2 continuing education credits (CEU) or 42 continuing medical education credits (CME) by completing the CDC open-book course exam. ISDH staff will collect and mail exams. Certificates from CDC will be available in approximately 4-6 weeks.

http://www.statehealth.in.gov/bioterrorism

Registration

Those interested must register no later than Wednesday March 20, 2002. To register, e-mail your form to Pam Pontones at ppontones@isdh.state.in.us or fax your form to 317-233-7805. Alternatively, you may mail your form to ISDH, attn.: Pam Pontones, 2 North Meridian Street 6-A, Indianapolis, IN 46204. Copies of the form can be made as necessary. Registrants will receive an e-mail confirmation and notification of the nearest downlink site. Those registered will also receive a copy of the CDC course textbook, which can be inserted into a three-ring binder. Dates and locations of the on-site technical assistance workshops will be given during the course. **There is no registration fee for the course or the exam.**

Registration Form for Principles of Epidemiology

Name: _____

Agency: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ FAX Number: _____

E-mail Address: _____

Check one:

- ❑ I wish to attend the on-site technical assistance workshop and take the exam.
- ❑ I wish to attend the on-site technical assistance workshop but not take the exam.
- ❑ I do not wish to attend the on-site technical assistance workshop.

Thank you for your interest in Principles of Epidemiology!

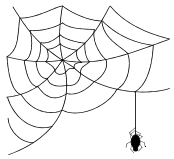
Infectious Disease Inquiry

John G. Mastronarde, MD
Assistant Professor of Medicine
Division of Pulmonary, Critical Care,
and Occupational Medicine
Indiana University Medical Center

In February 2002, the ICU service at Indiana University Hospital experienced an unusually high number of cases (5) of bronchiolitis obliterans organizing pneumonia (BOOP). Three cases were biopsy proven BOOP, and two additional cases were likely BOOP by clinical course, but were not biopsy proven. Five cases involved patients >60 years of age, while one patient was 37 years of age. All had typical clinical presentations of 2-3 weeks of cough, increasing dyspnea, and hypoxemia, with three patients having been treated for recurrent pneumonias for 1-6 months prior to admission and BOOP diagnosis. All cases were felt to be idiopathic, as initial screens for an etiology were negative (viral serologies were not done).

Editorial Note:

Anyone who has identified cases of this syndrome from February 2002 to the present is encouraged to notify Dr. Robert Teclaw, State Epidemiologist, by calling (317) 233-7807 or e-mail rteclaw@isdh.state.in.us.



Wonderful Wide Web Sites

ISDH Data Reports Available

The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:

http://www.statehealth.IN.gov (under Data and Statistics)

- Indiana Cancer Incidence Report (1990, 95,96)
- Indiana Cancer Mortality Report (1990-94, 1992-96)
- Indiana Health Behavior Risk Factors (1995-96, 97, 98,99)
- Indiana Hospital Consumer Guide (1996)
- Indiana Marriage Report (1995, 96, 97)
- Indiana Maternal & Child Health Outcomes & Performance Measures (1988-97, 1989-98, 1990-99)
- Indiana Mortality Report (97,98,99,2000)
- Indiana Natality Report (1995, 96, 97)
- Indiana Natality/Induced Termination of Pregnancy/Marriage Report (1998, 1999)
- Indiana Report of Diseases of Public Health Interest (1997, 98, 99)

HIV Disease Summary

Information as of February 28, 2002 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

363	New HIV cases from March 2001 thru February 2002	12-month incidence	5.97 cases/100,000
3518	Total HIV-positive, alive and without AIDS on February 28, 2002	Point prevalence	57.86 cases/100,000

AIDS cases to date:

355	New AIDS cases March 2001 thru February 2002	12-month incidence	5.84 cases/100,000
2941	Total AIDS cases, alive on February 28, 2002	Point prevalence	48.37 cases/100,000
6496	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in February *MMWR* Week 5-10		Cumulative Cases Reported January - February *MMWR* Weeks 1-10	
	2001	2002	2001	2002
Campylobacteriosis	14	20	20	22
Chlamydia	1916	1572	2974	2544
E. coli O157:H7	4	3	4	4
Hepatitis A	6	6	6	7
Hepatitis B	2	4	2	4
Invasive Drug Resistant *S. pneumoniae* (DRSP)	35	14	37	19
Gonorrhea	819	694	1299	1165
Legionellosis	1	2	2	2
Lyme Disease	0	0	0	0
Measles	0	0	0	0
Meningococcal, invasive	1	7	1	7
Pertussis	3	8	3	8
Rocky Mountain Spotted Fever	1	0	1	0
Salmonellosis	22	7	29	10
Shigellosis	26	7	35	10
Syphilis (Primary and Secondary)	23	2	29	9
Tuberculosis	2	5	12	14
Animal Rabies	1 (Bat)	0	1 (Bat)	1 (Dog)

For information on reporting of communicable diseases in Indiana, call the *ISDH Communicable Disease Division* at (317) 233-7665.

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The *Indiana Epidemiology Newsletter* is published by the Indiana State Department of Health to provide epidemiologic information to Indiana health professionals and to the public health community.